INTERFERENCE DIGEST

Interference No. 104,813 Paper No.18

Name: Martin E. Lee

Serial No.: 09/449,763 Patent No.

Title: Positioning device having dynamically isolated frame, and lithographic device provided with such a positioning device

Filed: 11/26/99

Interference with GERARD VAN ENGELEN , et al.

DECISION ON MOTIONS

Administrative Patent Judge,_____Dated,_____

_____

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_____

FINAL DECISION

Board of Patent Appeals and Interferences, favorable Dated, 12/4/03

_____

Court,_____Dated,_____

REMARKS

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This should be placed in each application or patent involved in interference in addition to the interference letters.

The opinion in support of the decision being entered today is not binding precedent of the Board.

Paper 19

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

GERARD **VAN ENGELEN**, FRANK B. SPERLING,
HENRICUS W. A. JANSSEN, ADIANUS G. BOUWER,
CORNELIS D. VAN DIJK, JOHANNES M. M. VAN KIMMENADE,
JAN VAN EIJK, and ADRIANUS VAN DER PAL

Junior Party,
(Patent 5,953,105),

v.

MARTIN E. **LEE**,

Senior Party,
(Application 09/449,763).

Patent Interference No. 104,813

Before LEE, LANE, and MEDLEY, Administrative Patent Judges.

MEDLEY, Administrative Patent Judge.

DECISION ON PRELIMINARY MOTIONS AND JUDGMENT

A. Introduction

This interference was declared on April 17, 2002. Van Engelen has filed preliminary motions 1-3 under 37 CFR § 1.633(a) for judgment against Lee on the ground that Lee claims 2 and 8 are unpatentable under 35 U.S.C. § 112, ¶ 1 for lack of written description support for certain claim terms, or alternatively that claims 2 and 8 are indefinite under 35 U.S.C. § 112, ¶ 2, or that there is no interference-in-fact (Papers 41-43). Van Engelen has filed a preliminary motion 4 under 37 CFR § 1.633(a) for judgment against Lee on the ground that Lee claims 2 and 8 are unpatentable under 35 U.S.C. § 112, ¶ 1 for failing to provide an enabling disclosure for those claims (Paper 44). Van Engelen has filed a preliminary motion 6, attacking the benefit accorded Lee (Paper 46). Van Engelen has also filed preliminary motion 5 for judgment against Lee on the ground that Lee claims 2 and 8 are unpatentable under 35 U.S.C. § 102(b), based on an on sale bar (Paper 45).

In Lee preliminary motion 2[1], Lee requests that van Engelen claims 4, 7 and 10 be designated as corresponding to the count (Paper 36). Lee has filed three preliminary motions (preliminary motions 3, 5 and 6) under 37 CFR § 1.633(a), seeking judgment against van Engelen on the ground that all of van Engelen's involved claims and claims 4, 7 and 10 that Lee seeks to designate as corresponding to the count are unpatentable under 35 U.S.C. §§ 102/103 based on various prior art (Papers 37, 39 and 40). Lee has filed preliminary motion 4 seeking to be accorded the benefit of one earlier, and two subsequently filed Lee applications (Paper 38). Lee has filed contingent preliminary motions to (1) add claims 9-18 to its involved application and to designate those claims as corresponding to the count (Paper 55), (2) substitute a count for

[1] Lee miscellaneous motion 1 to disqualify van Engelen's counsel was denied (Paper 31).

the present count (Paper 56), and (3) be accorded benefit of the new count (Paper 57). According to the junior party van Engelen's preliminary statement, van Engelen does not allege a date that is earlier than the senior party Lee's effective filing date (Paper 47).

Oral argument was held on 29 April 2003. During oral argument counsel for van Engelen withdrew van Engelen preliminary motion 4 (Paper 102 at 84, line 25 to page 86, line 2).

For the reasons that follow, van Engelen preliminary motions 1-3, 5 and 6 are denied. Lee preliminary motion 2 is granted. Van Engelen preliminary motion 4 and Lee preliminary motions 3-9 are dismissed, and judgment is entered against van Engelen.

B. Findings of fact

1. Van Engelen is involved on the basis of Patent 5,953,105 ('105), granted 14 September 1999, based on application 08/776,418, filed 30 January 1997.

2. Van Engelen has been accorded benefit for the purpose of priority of PCT/IB96/00383, filed 29 April 1996.

3. Lee is involved on the basis of application 09/449,763, filed 26 November 1999.

4. Lee has been accorded benefit for the purpose of priority of application 09/192,153, filed 12 November 1998 and application 08/416,558, filed 4 April 1995.

5. Van Engelen real party in interest is ASML Netherlands, B.V. (Paper 9).

6. Lee real party in interest is Nikon Corporation (Paper 4).

7. Count 1, the sole count of the interference, is as follows:

Claim 2 of 09/449,763

or

Claim 2 of 5,953,105

8. Lee claim 2 is as follows:

2. A positioning device comprising an object table, a sub-system for processing an object to be placed on the object table, a drive unit for displacing the object table relative to the sub-system, and a measuring system for measuring a position of the object table relative to the sub-system, the drive unit comprising a stationary part which is fastened to a first frame of the positioning device, while the measuring system comprises a stationary part and a movable part which is fastened to the object table for cooperation with the stationary part of the measuring system, characterized in that the stationary part of the measuring system is fastened to a second frame of the positioning device which is dynamically isolated from the first frame, and in that the sub-system is fastened to the second frame.

9. Claim 2 of van Engelen depends from van Engelen claim 1. Van Engelen claim 1 and van Engelen claim 2 are as follows:

1. A positioning device comprising an object table, a sub-system for processing an object to be placed on the object table, a drive unit for displacing the object table relative to the sub-system, and a measuring system for measuring a position of the object table relative to the sub-system, the drive unit comprising a stationary part which is fastened to a machine frame of the positioning device, while the measuring system comprises a stationary part and a movable part which is fastened to the object table for cooperation with the stationary part of the measuring system, characterized in that the stationary part of the measuring system is fastened to a reference frame of the positioning device which is dynamically isolated from the machine frame.

2. A positioning device as claimed in claim 1, characterized in that the sub-system is fastened to the reference frame.

10. The claims of the parties are:

Van Engelen:	1-11
Lee:	1-8

11. The claims of the parties which correspond to Count 1 are:

Van Engelen:	1-3, 5, 6, 8, 9, and 11
Lee:	1-8

12. The claims of the parties which do not correspond to Count 1 are:

Van Engelen:	4, 7, and 10
Lee:	none

13. The level of ordinary skill in the art is defined by the prior art of record.

C. Decision

Van Engelen preliminary motions 1-3

Van Engelen preliminary motions 1-3 are for judgment against Lee on the basis that Lee's claims 2 and 8 are unpatentable under 35 U.S.C. § 112, ¶ 1, or are indefinite under 35 U.S.C. § 112, ¶ 2, or that there is no interference-in-fact. As the movant van Engelen bears the burden to demonstrate that it is entitled to the relief sought. 37 CFR § 1.637(a).

Written Description

Van Engelen argues that Lee's specification fails to provide support for (1) a second frame that is "dynamically isolated" from a first frame (motion 1), (2) a stationary part of the drive unit that is fastened to a first frame (motion 2), and (3) a stationary part of the measuring system fastened to the second frame (motion 3).

Lee original claims 1 and 4, filed per a preliminary amendment on the day the '763 application was filed, recite all of the limitations that van Engelen asserts are not described in Lee's specification. Lee claim 2 was amended to be in independent form, but includes all of the original language in original claims 1 and 2. Lee claim 8 was amended to be in independent form, but includes all of the original language in original claims 4 and 8.

It is well established that original claims, in unamended form are a part of the original specification as filed. See In re Koller, 613 F.2d 819, 823, 204 USPQ 702, 706 (CCPA 1980); In re Gardner, 475 F.2d 1389, 1391, 177 USPQ 396, 397 (CCPA 1973). To the extent that van Engelen is relying on the specification of Lee's parent applications to make the argument that the involved Lee specification does not provide written description support for Lee claims 2 and 8 under 35 U.S.C. § 112, first paragraph, that is improper. See Reiffin v. Microsoft, 214 F.3d 1342, 1346, 54 USPQ2d 1915, 1918 (Fed. Cir. 2000). Accordingly, that portion of van Engelen's preliminary motions 1-3 seeking judgment against Lee on the basis that Lee's involved claims 2 and 8 lack written description support under 35 U.S.C. §112, ¶ 1 is denied.

Indefiniteness

Van Engelen additionally argues that Lee's claims 2 and 8 are unpatentable under 35 U.S.C. §112, ¶ 2. Van Engelen argues that should the board determine that Lee's claims 2 and 8 are ambiguous, any attempt to resolve the ambiguity only emphasizes the inconsistency between the claim language and the '763 specification (motions 1 and 2 at 15, motion 3 at 17).

Van Engelen makes no real attempt to explain or prove that the involved claims 2 and 8 are ambiguous in the first place. Van Engelen seems to invite the panel to make an independent determination that the claims are ambiguous. We decline the invitation. It is the role of advocate, not judge, to present a detailed analysis as to why the claims are, on their face, ambiguous. Van Engelen bases the rest of its discussion on a presumption that the claims are ambiguous, and discusses why Lee's involved specification fails to resolve the ambiguity. However, even that analysis is flawed.

Van Engelen argues that Lee's application is devoid of a (1) discussion of how the frames are "dynamically isolated" from one another (motion 1), (2) description of a stationary part of the measuring system that is fastened to the second frame (motion 3), or (3) description of a stationary part of the drive unit that is fastened to the reaction frame (motion 2). In essence, Van Engelen argues that Lee's claims 2 and 8 are not enabled or described, and thus are indefinite. However, the written description requirement and the enablement requirement are separate and distinct from the definiteness requirement. "Definiteness and enablement are analytically distinct requirements." Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1358 n.2, 52 USPQ2d 1029, 1034 n.2 (Fed. Cir. 1999). Even if the written description does not enable the claim, the claim language itself may still be definite. Union Pac. Res. Co. v. Chesapeake Energy Corp., 236 F.3d 684, 692, 57 USPQ2d 1293, 1297 (Fed. Cir. 2001). Since van Engelen has failed to apply the correct standard and sufficiently demonstrate that Lee claims 2 and 8 are indefinite, this part of van Engelen motions 1-3 is denied.

No interference-in-fact

Van Engelen argues that if Lee's claims are definite and are supported by Lee's specification, then there is no interference-in-fact between Lee and van Engelen. Van Engelen, in its preliminary motion 1, page 17, argues that Lee's claims should be interpreted such that the "dynamically isolated" frames are physically isolated frames, which is in contrast with van Engelen's "dynamically isolated" frames which are physically interconnected with a dynamic isolator. Likewise, in its preliminary motions 2 and 3, van Engelen argues that when the van Engelen and Lee claims are interpreted in light of the respective specifications, the parties' claims are limited by their respective specifications, which describe different architecture for the

(1) stationary part of the measuring system that is fastened to the second frame and (2) stationary part of the drive unit that is fastened to the machine frame (motion 2 at 17 and motion 3 at 19). Van Engelen, in interpreting the nearly identical involved claims, proposes to import limitations into the respective parties' claims. The specific structure that van Engelen imports from the respective specifications is not recited in the parties' claims. For example, Lee claim 2 recites a relationship between two frames - that the frames are dynamically isolated, and not a specific structure, as further discussed *infra*.

In any event, van Engelen fails to sufficiently demonstrate that even if the respective parties' claims require the structure van Engelen urges that they do, that there is no interference-in-fact. Van Engelen argues that "assuming that the '763 application is prior art to the '105 patent, the disclosure in the '763 application does not anticipate or render obvious van Engelen's '105 patent. Likewise, the '105 patent does not anticipate or render obvious the properly construed claims of the '763 application" (motions 1 and 2 at 17, motion 3 at 19). Van Engelen's conclusory statement falls far short from providing a detailed analysis required to demonstrate that there is no interference-in-fact.

Van Engelen must demonstrate that no one claim of Lee claims the same patentable invention as any one claim of van Engelen, or that no one claim of van Engelen claims the same patentable invention as any one claim of Lee.

The definition of "same patentable invention" is set out in 37 CFR § 1.601(n) and is as follows:

> Invention "A" is the same patentable invention as an invention "B" when invention "A" is the same as (35 U.S.C. 102) or is obvious (35 U.S.C. 103) in view of invention "B" assuming invention "B" is prior art with respect to invention "A". Invention "A" is a

separate patentable invention with respect to invention "B" when invention "A" is new (35 U.S.C. 102) and non-obvious (35 U.S.C. 103) in view of invention "B" assuming invention "B" is prior art with respect to invention "A".

The proper analysis in determining that there is an interference-in-fact between the parties' claims is a two-way "same patentable invention" analysis. The claimed invention of Party A is presumed to be prior art vis-a-vis Party B and vice versa. See Eli Lilly v. Regents of the Univ. Wash., 334 F.3d 1264, 67 USPQ2d 1161 (Fed. Cir. 2003).

The proper analysis then in determining that there is no interference-in-fact between the parties' claims is a one-way analysis. Thus, van Engelen need only demonstrate that (1) no one claim of Lee anticipates or renders obvious a claim of van Engelen or (2) no one claim of van Engelen anticipates or renders obvious a claim of Lee. The moving party should discuss the relevant prior art and explain why the prior art does not teach or suggest the modifications of the one party's claims (e.g., van Engelen's claims) in view of the other party's claims (e.g., Lee's claims).

Van Engelen makes no meaningful attempt to explain why Lee's claims are separately patentable in view of van Engelen's claims or vise versa. It is not enough to point out differences and conclude that there is no interference-in-fact. Nor is it meaningful to argue that one party's specification is separately patentable over the other parties specification, or that one party's claims are separately patentable over the opponents specification. The appropriate comparison is between the claims and not the disclosures. For all of these reasons, van Engelen has failed to sufficiently demonstrate that there is no interference-in-fact. Van Engelen preliminary motions 1-3 are denied.

Van Engelen preliminary motion 4

During oral argument, counsel for Van Engelen withdrew van Engelen preliminary motion 4 from consideration (transcript at 84-85). Accordingly, van Engelen preliminary motion 4 is dismissed.

Van Engelen preliminary motion 6

Van Engelen has filed a preliminary motion under Rule 633(g), attacking the benefit accorded Lee in the notice declaring interference. At the time the interference was declared, Lee was accorded benefit of application 09/192,153 ('153 application), filed 12 November 1998, now U.S. Patent 6,246,202, granted 12 June 2001 and application 08/416,558 ('558 application), filed 4 April 1995, now U.S. Patent 5,874,820, granted 23 February 1999.

Van Engelen argues that Lee is not entitled to the benefit of the earlier filing date of the Lee '558 application under 35 U.S.C. §§ 119 or 120. The '558 application incorporates by reference, Lee application 08/221,375('375). Lee was not accorded priority benefit of the '375 application at the time the interference was declared. We note that Lee has moved to be accorded priority benefit of its '375 application and that motion is addressed *infra* in connection with Lee preliminary motion 4.

Van Engelen argues that the '558 application ineffectively incorporates by reference the '375 application, or alternatively incorporates only a specific portion of the '375 application that fails to describe certain ones of the claimed features in Lee claims 1-8. Alternatively, van Engelen argues that neither the '375 application nor the '558 application, standing alone, provide written description support for Lee claims 1-8 (motion at 14).

A party moving to attack the benefit accorded an opponent bears the burden of proof to demonstrate, as to the count, why the opponent should not be accorded the benefit of the filing date of the earlier application. 37 CFR § 1.637(a) and 37 CFR § 1.637(g). In order to be accorded benefit, Lee's priority applications need only describe an enabling embodiment within the scope of the count. Weil v. Fritz, 572 F.2d 856, 865-66 n.16, 196 USPQ 600, 608 n.16 (CCPA 1978); Hunt v. Treppschuh, 523 F.2d 1386, 1389, 187 USPQ 426, 429 (CCPA 1975).

Benefit for the purpose of priority is something different than benefit under 35 U.S.C. § 119 or 35 U.S.C. § 120. See Cromlish v. D. Y., 57 USPQ2d 1318 (BPAI 2000 - precedential Trial Section opinion). Note, that in order to be accorded benefit for purposes of priority, the '558 application need only describe an enabling embodiment within the scope of the count. Thus, it is not necessary that the '558 application provide written description support for Lee's claims 1-8[2]. Accordingly, we address van Engelen's arguments only with respect to van Engelen claim 2, which is an alternative of the count.

There is yet another flaw in the arguments advanced by van Engelen. Although van Engelen takes the position that the '558 application fails to provide support for Lee claim 2, with or without incorporating by reference the '375 application, van Engelen fails to discuss the '558 application with particularity. Van Engelen fails to set forth in its motion what the '558 application describes and why it alone fails to describe an enabling embodiment within the scope of the count. Van Engelen discusses the '375 application in detail. However, the inquiry should begin with what the '558 application describes. That is the application for which Lee was

[2] The differences between priority benefit and benefit under §§ 119 and 120 were explained to counsel for the respective parties early in the proceeding, during the conference call for setting times for the preliminary motions phase of the interference (Paper 30).

accorded benefit. Until it is determined what the '558 application describes, there is no need to look to the '375 application. The issue of incorporation by reference is moot, if the '558 application alone describes an enabling embodiment within the scope of the count.

Since van Engelen has failed to sufficiently demonstrate that the '558 application, standing alone, fails to describe an enabling embodiment within the scope of the count we need not determine if the Lee '558 application has effectively incorporated by reference the '375 application, or determine if the '375 application describes an enabling embodiment within the scope of the count. Our discussion pertains to what is set forth in the '558 application and not the '375 application.

Dynamically isolated frames

Lee claim 2 (an alternative of the count) recites a first frame and a second frame. The claim recites that the second frame is dynamically isolated from the first frame. Van Engelen argues that the '558 application fails to describe a second frame that is dynamically isolated from a first frame (motion at 17). At the heart of van Engelen's argument is the meaning of the term "dynamically isolated."

Van Engelen argues that the '558 application fails to support the broadest reasonable interpretation of "dynamically isolated." The broadest reasonable interpretation of "dynamically isolated", van Engelen argues, comes by way of definition for the terms isolated and dynamically. Van Engelen argues that:

> The term isolated is a verb which means "separate from a group or whole and set apart." (Exh. 2016: Definition, page 956). The term "dynamically" is the adverbial form of the word "dynamic", which is defined as being "[c]haracterized by continuous change, activity, or progress." (Exh. 2017: Definition, page 574). Thus, in the context of the claim language, the term "dynamically" is modifying how the second frame is "isolated"

from the first frame. The broadest reasonable meaning of these words requires that the second frame be *isolated* from the first frame in a manner that is *characterized by continuous change, activity or progress.*

There is nothing in either the '375 or '558 application that shows such an invention. To the extent that the '375 application or the '558 application discloses separating the reaction frame from the XY stage support frame, that separation is *not* characterized by continuous change, activity or progress but is static, physical isolation. In fact, in the '558 application, Lee explains that reaction forces are transmitted independently to the earth's surface by a structure that is *physically isolated* from the support frame. (Exh. 2045: '558 Appln., page 3, line 28 - page 4, line 5) (emphasis in original) (motion at 17).

We understand van Engelen's definition of "dynamically isolated" to require that the frames be isolated dynamically - that there necessarily be something in between the two frames that provides the isolation, i.e. that the frames be physically interconnected with dynamic isolators[3]. Van Engelen does not dispute that the '763 application as well as the '558 specification describe physically separate frames. Van Engelen does, however, disagree that two physically separate frames are "dynamically isolated" when applying the broadest reasonable interpretation of that claim term.

Van Engelen's definition of "dynamically isolated" is derived by viewing the term in light of van Engelen's specification, resulting in an importation of a structural element that is not part of the count. Van Engelen's definition for dynamically isolated is not the broadest reasonable interpretation of that term. When the term "dynamically isolated" is properly construed, the Lee '558 application provides an enabling embodiment within the scope of the count.

Van Engelen's proposed definition of dynamic is the second listed definition, and the example for that definition is that of a dynamic market (Ex. 2017). Van Engelen provides no

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[3] During oral argument, counsel for van Engelen so represented (Paper 102 at 17-18).

explanation why the term "dynamic" or dynamically should be interpreted under the second listed definition as opposed to the first definition. Note, that Dr. Kurfess, van Engelen's expert, provides no explanation as to why the proposed second definition is what one of ordinary skill in the art would understand the definition to be (Ex. 2012 ¶ 39). Generally, it is the first listed definition that is the most commonly used definition for a given word. A dynamic market would appear to have nothing to do with two mechanical frames and the relationship between those two frames. Furthermore, van Engelen's proposed definition would require a structural element between the two frames. Lee's claim 2, however, does not recite an element for isolating the two frames. Rather, the claim merely recites the relationship between the two frames. The relationship is described by the term dynamically isolated. We will not read limitations into Lee's claims that would require an element to be in between the two frames. Lee's claim 2 is not so limiting. Van Engelen's proposed definition is ultimately obtained by looking to its own specification and importing limitations from its specification into the count. However, the count is Lee claim 2 or van Engelen claim 2. Each alternative of the count is interpreted in light of the parties' respective involved specifications. The first alternative of the count (Lee claim 2) is interpreted in light of Lee's involved '763 specification.

With that in mind, a more reasonable interpretation of the term "dynamically isolated" may be gleaned from the first definition for the word "dynamic" and from Lee's specification. The first definition for dynamic is "of or relating to energy or to objects in motion" (Ex. 2017). That definition, on its face, is a more reasonable definition for the term dynamic when considered in the context of two frames and their relationship. Lee's '763 specification describes two frames that are isolated from each other, such that the reaction forces from the elements of one

frame are not transmitted to the other frame. That is, the dynamics, e.g., motion, from one frame are isolated from the other. In this light, and in view of the first definition for the term dynamic, a more reasonable interpretation of the term dynamically isolated is that the dynamics are isolated from one frame to the other - that the reaction forces from one frame are not transmitted to the other frame. Note, that the proposed definition does not necessarily require structure in between the two frames, but is merely descriptive of the relationship between the two frames. Lee's involved '763 application supports such an interpretation of "dynamically isolated" frames. For example, the '763 specification states that:

> An additional aspect in accordance with the invention is that the reaction force of the stage and window frame drive motors is not transmitted to the support frame of the photolithography apparatus projection lens but is transmitted independently directly to the earth's surface by an independent supporting structure. Thus, the reaction forces caused by movement of the stage do not induce undesirable movement in the projection lens or other elements of the photolithography machine (Ex. 2011 at 3, lines 4-9).

The above indicates that reaction forces, e.g., dynamics of the one frame, are not transmitted to the other frame and are therefore "dynamically isolated." This definition for dynamically isolated, that the reaction forces are isolated, is a more reasonable interpretation of the term "dynamically isolated" given the description in Lee's '763 specification and the first listed definition for dynamic as previously discussed. Van Engelen's definition of "dynamically isolated", in contrast, is derived from van Engelen's involved specification, and by importing an element into Lee's claim 2 that simply is not claimed. To the extent that the second alternative of the count, i.e., van Engelen's claim 2, should be interpreted to mean that there are necessarily "dynamic isolators" in between the two frames does not mean that Lee's claim 2, the first alternative of the count should also be interpreted the same way. The count is the disjunctive

alternative of the parties' claim 2. Lee '558 need only describe an enabling embodiment within the scope of the count, e.g., Lee claim 2. It need not describe an enabling embodiment for both alternatives of the count.

As discussed above, van Engelen fails to discuss with any particularity what the '558 application describes, and because of that, its argument is not persuasive. However, we note, that the '558 application describes a first frame (80 and 114A-114D), and a second frame (94 and 102A-102D) that are physically isolated, such that reaction forces from one frame are isolated from the other frame. As discussed above, when properly interpreted, the '558 application thus describes two frames that are dynamically isolated. Van Engelen has failed to demonstrate otherwise. Accordingly, we are not persuaded that van Engelen has satisfied its burden of proof to sufficiently demonstrate that Lee's '558 application fails to describe an enabling embodiment within the scope of the count with respect to two frames that are "dynamically isolated" when that term is correctly interpreted.

A stationary part of the drive unit fastened to the first frame

Lee claim 2 recites a drive unit comprising a stationary part which is fastened to a first frame of the positioning device. Van Engelen argues that Lee '558 fails to provide support for any *stationary* part of the drive unit that is *fastened* to a first frame (motion at 13). Van Engelen provides no meaningful explanation as to why the '558 application fails to describe a stationary part of the drive unit that is fastened to a first frame, and thus has failed to meet its burden to demonstrate that the '558 application fails to describe the claimed feature. Accordingly, we need not independently make the determination as to whether the '558 application does describe a stationary part of a drive unit that is fastened to the first frame.

In any event, we note that the '558 application describes a reticle stage drive unit[4] that includes X axis linear motors comprised of magnetic tracks 62A and 62B and magnetic coils 60A and 60B and Y axis linear motors comprised of magnetic tracks 70A and 70B and coils 68A and 68B. The magnetic tracks 70A and 70B are mounted on window frame guide members 40C and 40D respectively. The motor coils 68A and 68B are mounted on the reticle stage 10. The magnetic tracks 62A and 62B are mounted on fixed guides 64A and 64B respectively. The coils 60A and 60B are mounted on guide members 40A and 40B respectively. The guide members 40A-40D and the fixed guide members 64A and 64B are fastened to support structure 80 and 114A-114D (first frame). The drive tracks cooperate with the drive coils to move the reticle stage. At least the drive tracks satisfy the limitation of a stationary part of the drive unit which is fastened to a first frame as follows.

There are two parts to a motor: a stator and a rotor. A stator is defined as the stationary part of a machine, such as a motor, and the rotor is defined as the rotating part (Webster's II New Riverside University Dictionary, Copyright 1988 (definitions attached)). A linear motor is defined as an electric motor that has in effect been split and unrolled into two flat sheets, so that the motion between the rotor and stator is linear rather than rotary. (McGraw-Hill Dictionary of Scientific and Technical Terms - Fifth Edition, copyright 1994 (definition attached)). In the

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[4] We recognize that the '558 application describes an embodiment of a reticle drive unit for moving a reticle stage and not a wafer stage drive unit for moving a wafer stage. However, we note that Lee's claim 2 recites an object table (stage) for processing an object, and a drive unit for displacing the object table. The claim is not limited to a particular object, e.g. a wafer versus a reticle. In any event, the '558 application states in at least two places that the embodiment described may be used for a wafer stage for processing a wafer (Ex. 2045, at 3, lines 21-26 and 5, lines 31-33).

context of a linear motor, the rotor does not rotate, but rather moves in a linear fashion. The stator is that part of the motor which remains stationary relative to the rotor.

Lee describes a linear motor where the stationary parts of the motor, or the stator of the motor is understood to be the X and Y drive tracks. Thus, the '558 application describes a stationary part of the drive unit. Furthermore, the X and Y drive tracks, or stators are attached to the first frame 80, 114A-114D through the guides, and are thus, fastened to the first frame.

From the above, the '558 application describes an enabling embodiment within the scope of the count. Based on the record before us, van Engelen has failed to direct us to evidence that would demonstrate otherwise. In this regard, van Engelen's silence with respect to the '558 application is fatal to its motion.

A stationary part of the measuring system fastened to a second frame

Lastly, van Engelen argues that the '558 application does not support a measuring system comprising a stationary part which is fastened to a second frame (motion at 19).

Again, although van Engelen argues that the '558 application fails to describe the feature in question, van Engelen fails to discuss with any particularity why that is so. Van Engelen's arguments are conclusory and unsupported by evidence. Accordingly, van Engelen has failed to demonstrate that Lee should be stripped of its priority benefit of the '558 application. Our inquiry need not go any further.

In any event, we note that the '558 application describes an interferometer system used to determine the location of the reticle stage. The system includes two laser interferometry mirrors 14A and 14B located on stage 10, and laser interferometer units 112A, 112B and 112C. The interferometer units are mounted on supports 108 and 110. As seen in Figure 4, the supports 110

and 108 are located on top of the second frame 94. Although the supports are not described as being fastened to the second frame, figure 4 suggests that they are. More importantly, Lee's '558 application states that:

> An additional aspect in accordance with the invention is that the reaction force of the stage and window frame drive motors is not transmitted to the support frame of the photolithography apparatus projection lens but is transmitted independently directly to the earth's surface by an independent supporting structure. Thus, the reaction forces caused by movement of the stage do not induce undesirable movement in the projection lens or other elements of the photolithography machine.
>
> This physically isolating the stage reaction forces from the projection lens and associated structures prevents these reaction forces from vibrating the projection lens and associated structures. These structures include the interferometer system used to determine the exact location of the stage in the X-Y plane and the wafer stage. Thus, the reticle stage mechanism support is spaced apart from and independently supported from the other elements of the photolithography machine and extends to the surface of the earth. (Emphasis added). (VE Ex. 2011 at 3, lines 4-16).

From the above, the reaction force of the stage and window frame drive motors is not transmitted to the support frame such that the reaction forces do not induce movement in the instruments that are supported by the support frame - the projection lens and other elements of the photolithography machine, including the interferometer system. Thus, the above description in combination with Figure 4 indicate that the interferometer system is fastened to the support frame (second frame). If it were otherwise, the Lee '558 specification would not go to great lengths to explain that the reaction forces are not transmitted to the projection lens and associated structures (including the interferometer system). For example, if the interferometer system were mounted on a wall, the system would not be subjected to system vibrations and thus there would be no discussion in the '558 specification about isolating vibrations for the interferometer system. Furthermore, there is no discussion throughout the Lee '558 specification of mounting

any of the instruments or components of the disclosed mechanism anywhere other than on the reaction frame or on the support frame. For these reasons, there is support for the claimed stationary part of the measuring system fastened to the second frame. Based on the record, van Engelen has failed to demonstrate otherwise. Again, van Engelen's failure to discuss the '558 specification is fatal to its motion.

For all of the above reasons, van Engelen, through its preliminary motion 6, has failed to sufficiently demonstrate that Lee should be denied benefit of the '558 application. Accordingly, van Engelen preliminary motion 6 is denied.

Van Engelen preliminary motion 5

Van Engelen moves under 37 CFR § 1.633(a) for judgment against Lee on the basis that Lee claims 2 and 8 are unpatentable based on an on sale bar under 35 U.S.C. § 102(b). At the outset, we note that van Engelen has failed to attach an appendix to its preliminary motion as specified in Section 26(d) of the Standing Order (Paper 1 at 25)). Despite this shortcoming, we consider van Engelen's motion on the merits. We further note that the on sale bar is prior art to van Engelen (transcript at 65, lines 17-23), and would likewise apply to its claims.

The on-sale bar applies when two conditions are satisfied before the critical date. First, the product must be the subject of a commercial offer for sale. Second, the invention must be ready for patenting. Pfaff v. Wells Elec., Inc., 525 U.S. 55, 67, 48 USPQ2d 1641, 1646-47 (1998). The second prong may be satisfied by (1) proof of reduction to practice before the critical date; or (2) proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention. 525 U.S. at 67, 48 USPQ2d at 1647.

The on-sale bar analysis begins by first determining whether the subject of the barring activity met each of the limitations of the claim or would have rendered obvious the claimed subject matter. See Scaltech Inc. v. Retec/Tetra L.L.C., 178 F.3d 1378, 1383, 51 USPQ2d 1055, 1058 (Fed. Cir. 1999); and Tec Air Inc. v. Denso Manufacturing Michigan Inc., 192 F.3d 1353, 1358, 52 USPQ2d 1294, 1296-97 (Fed. Cir. 1999).

Anticipation

We will assume, for the purpose of this part of the discussion that the Micrascan II system was offered for sale more than a year prior to 4 April 1995, Lee's effective filing date. Based on the record before us, however, van Engelen has failed to establish that the Micrascan II system that was sold anticipates Lee claims 2 and 8.

The photos, schematics, and documentation that have been submitted into evidence standing alone would not be sufficient to establish a *prima facie* case of anticipation. The parts shown in several of the schematics and photos are not labeled, and without some explanation the schematics and photos are not particularly helpful. The documents labeled Micrascan I and II System Comparison (Ex. 2032) and the Micrascan II Program Plan (Ex. 2033) are also not very helpful, since neither document, standing alone, explains or clearly sets forth each element of Lee claims 2 or 8. Van Engelen exhibits 2034 and 2035 are the best pieces of evidence that van Engelen has submitted. These exhibits are apparently reproductions of the Micrascan II system. Mr. Galburt testified that the exhibit 2034 is a true and accurate representation of the structural design concept of the Micrascan II as it existed in the 1992 time-frame. Galburt also testified that the exhibit 2035 is a true and accurate representation of the structural interconnections of the Micrascan II as it existed in the 1992 time-frame (VE Ex. 2024 ¶¶ 21 and 22).

Even still, the exhibits 2034 and 2035, which are schematics, do not by themselves explain how elements are connected and how the elements function. In that light, van Engelen relies on the declaration of Dr. Kurfess to explain what exhibits 2034 and 2035 describe and that the Micrascan II system shown in those exhibits anticipates Lee claims 2 and 8. Dr. Kurfess is said to be an expert of metrology systems. We do not know, however, how his experience pertains to photolithography systems or positioning devices as claimed in Lee claims 2 and 8. Neither van Engelen nor Dr. Kurfess tells us. Still further, Dr. Kurfess apparently has no first hand knowledge of the Micrascan II device that was sold. That is, Dr. Kurfess' testimony is based on his independent review of the schematics and photos submitted into evidence by van Engelen (Ex. 2012 at 69). Absent from the record is an explanation supporting Kurfess' conclusion that he has drawn with respect to how the elements shown in exhibits 2034 and 2035 are connected and how the elements function. For example, Dr. Kurfess testified that "in the Micrascan II, there was a wafer stage interferometer system including a wafer stage IF (interferometer) module 280 and wafer IF L-shaped mirror 240 for measuring the position of the wafer stage table relative to the projection optics system 110. (Exh. 2034: MS II FIG. 1; 2035: MS II FIG. 2)" (Ex. 2012 ¶¶ 75 and 86).

It is not apparent from either of exhibits 2034 or 2035 that the module 280 and mirror 240 cooperate to measure the position of the wafer stage table relative to the projection optics system 110 as recited in Lee claims 2 and 8. Dr. Kurfess does not explain how it is so. Kurfess' statements that the module 280 and mirror 240 function to measure the position of the wafer stage table relative to the projection optics system 110 are conclusory and unsupported assertions. Nothing in the Federal Rules of Evidence (applicable to patent interference cases) or

Federal Circuit jurisprudence requires a fact finder to credit the unsupported assertions of an expert witness. Rohm and Haas Co. v. Brotech Corp., 127 F.3d 1089, 1092, 44 USPQ2d 1459, 1462 (Fed. Cir. 1997). Since (1) we do not know how Dr. Kurfess' expertise relates to the photolithography or positioning machines in Lee claims 2 and 8, and (2) the underlying basis supporting Kurfess' opinion is not set out in his testimony, we do not credit Kurfess' testimony.

Further, van Engelen has failed to sufficiently demonstrate that the two frames in the Micrascan II device were dynamically isolated. Van Engelen states that Lee's first frame 261 is physically isolated from the second frame so as not to transfer vibrations between the first frame and the XY stage, implying that such an arrangement meets the limitation of dynamically isolated frames. Van Engelen then concludes, through reliance on Kurfess' unsupported assertions, that the Micrascan II second frame 170 was dynamically isolated from the first frame 270 by isolators 180. Van Engelen, however, fails to demonstrate that the Micrascan II first frame and second frames are dynamically isolated so as not to transfer vibrations between the two frames as it asserts. Rather, the Micrascan II system is facially different, with its attached frames, than Lee's system with its separate frames. While the Micrascan II system does show isolators between the two frames, the two frames are also connected by way of turnbuckles 265A. That connection would appear to allow at least some vibrations or reaction forces to be transferred between the two frames, despite the isolators 180. Yet, van Engelen fails to discuss the isolators or the turnbuckle connections between the two frames, so as to provide a persuasive argument that the Micrascan II frames are dynamically isolated, as that term is applied by van Engelen in the context of Lee's claims. Accordingly, van Engelen has failed to establish a *prima facie* case of

anticipation. Therefore, we need not and have not determined whether van Engelen has sufficiently demonstrated that the device sold was "ready for patenting."

Since van Engelen has failed to meet its burden of proof to show that it is entitled to the relief sought, Lee's opposition need not and has not been considered. Van Engelen preliminary motion 5 is denied.

With respect to the patentability of van Engelen's claims corresponding to the count over the Micrascan II device, we make no determination. Since judgment is concurrently entered against van Engelen based on priority, we need not decide the issue.

Lee preliminary motion 2

Through its preliminary motion 2, Lee seeks to designate van Engelen claims 4, 7 and 10 as corresponding to the count. Van Engelen claim 4 depends on van Engelen claim 3. Van Engelen claims 3 and 4 are as follows:

> 3. A positioning device as claimed in claim 1, characterized in that the object table is displaceable over a guide parallel to at least an X-direction, the guide being fastened to the reference frame.
>
> 4. A positioning device as claimed in claim 3, characterized in that the positioning device is provided with a force actuator system which is controlled by an electric control unit and which exerts a compensation force on the reference frame during operation, which compensation force has a mechanical moment about a reference point of the reference frame having a value equal to a value of a mechanical moment of a force of gravity acting on the object table about said reference point, and a direction which is opposed to a direction of the mechanical moment of said force of gravity.

Van Engelen claim 7 depends on van Engelen claim 6, which depends on claim 5. Van Engelen claims 5-7 are as follows:

> 5. A lithographic device comprising a radiation source, a mask table, a projection system having a main axis, a substrate table, a drive unit for displacing the substrate table relative to the projection system in at least one direction perpendicular to the main axis, and a measuring system for measuring a position of the substrate table relative to the projection

system, the drive unit comprising a stationary part which is fastened to a machine frame of the lithographic device, while the measuring system comprises a stationary part and a movable part which is fastened to the substrate table for cooperation with the stationary part of the measuring system, characterized in that the stationary part of the measuring system is fastened to a reference frame of the lithographic device which is dynamically isolated from the machine frame.

6. A lithographic device as claimed in claim 5, characterized in that the substrate table is displaceable over a guide which extends perpendicularly to the main axis and is fastened to the reference frame.

7. A lithographic device as claimed in claim 6, characterized in that the lithographic device is provided with a force actuator system which is controlled by an electric control unit and which exerts a compensation force on the reference frame during operation, which compensation force has a mechanical moment about a reference point of the reference frame having a value equal to a value of a mechanical moment of a force of gravity acting on the substrate table about said reference point, and a direction which is opposed to a direction of the mechanical moment of said force of gravity.

Van Engelen claim 10 depends on claim 9, which depends on claim 8, which depends on claim 5. Van Engelen claims 8-10 are as follows:

8. A lithographic device as claimed in claim 5, characterized in that the lithographic device comprises a further drive unit for displacing the mask table relative to the projection system in a scanning direction perpendicular to the main axis, the further drive unit comprising a stationary part which is fastened to the machine frame, while the substrate table is displaceable relative to the projection system parallel to at least the scanning direction, the measuring system comprising a further stationary part which is fastened to the reference frame and a further movable part which is fastened to the mask table for cooperation with the further stationary part of the measuring system for measuring a position of the mask table relative to the projection system or for measuring a position of the mask table relative to the substrate table.

9. A lithographic device as claimed in claim 8, characterized in that the mask table is displaceable over a first guide extending parallel to the scanning direction and the substrate table is displaceable over a second guide extending perpendicularly to the main axis, the first guide and the second guide being fastened to the reference frame.

10. A lithographic device as claimed in claim 9, characterized in that the lithographic device is provided with a force actuator system which is controlled by an electric control unit and which exerts a compensation force on the reference frame during operation, which compensation force has a mechanical moment about a reference point of the reference frame of a value which is equal to a value of a sum of a mechanical moment of a force of gravity acting on the substrate table about said reference point and a mechanical moment of a force of gravity acting on the mask table about said reference point, and a direction which is opposed to a direction of said sum of mechanical moments.

As the movant, Lee must show that the proposed claims define the same patentable invention as another claim whose designation as corresponding to the count the moving party does not dispute. 37 CFR § 1.637(3)(ii). Lee has sufficiently demonstrated that van Engelen claims 4, 7 and 10 define the same patentable invention as van Engelen claims 3, 6 and 9 in view of Schutten[5], without the teachings of Lee '820.

In its opposition, van Engelen argues that since van Engelen claims 3, 6 and 9 require that the reference frame and the machine frame be dynamically isolated (i.e., isolated with dynamic isolators in between the two frames), and that the force actuator system of claims 4, 7 and 10 is defined in van Engelen's specification as being integrated with the dynamic isolators, then the compensation force recited in claims 4, 7 and 10 must be between the two frames and exerted on the reference frame (opposition at 14).

Van Engelen's claim interpretation is erroneous. Van Engelen necessarily reads limitations into its claims 4, 7 and 10 that are not present. Note, that none of van Engelen claims 4, 7, or 10 provides any relationship between the function of "dynamically isolated" frames and the force actuator system. Furthermore, as discussed in connection with van Engelen preliminary motion 5, one frame that is "dynamically isolated" from another frame does not mean that there are necessarily dynamic isolators in between the two frames. Van Engelen's independent claims 1 and 5 recite a relationship between the two frames, but do not recite any particular structure associated with that relationship. Even if we were to interpret van Engelen claims 1 and 5 to require dynamic isolators in between the two frames, it does not necessarily follow that the force actuator system also be in between the two frames. Claims 4, 7 and 10 recite a force actuator system which exerts a compensation force on the reference frame. Absent from the claims is a requirement that the force actuator system be in between the claimed reference frame and the

[5] U.S. Patent 4,821,205, granted 11 April 1989 (Ex. 1091).

machine frame, or that the force actuator system is integrated with dynamic isolators. All that is required is that the actuator system exert a force on the reference frame.

Van Engelen argues that Lee's involved specification fails to disclose a compensation force between the first and second frame. Van Engelen's argument is misplaced. Lee does not rely on its own specification to demonstrate that van Engelen claims 4, 7 and 10 would have been obvious over van Engelen claims 3, 6 and 9 in view of Schutten. To the extent that van Engelen is arguing that its claims should not be added to the interference since Lee cannot support such a claim, that argument is also rejected. It is of no moment that Lee may or may not have support for a force actuator system. A party moving to designate an opponent's claim as corresponding to the count, need demonstrate that the claim defines the same patentable invention as any one claim designated as corresponding to the count. Absent from that requirement is that the movant must also demonstrate that it has written description support for the opponent's claim. The query is not can the movant support such a claim, but rather does the claim define the same patentable invention as a claim already designated as corresponding to the count.

Van Engelen argues that Lee '820 fails to teach a compensation force between two frames. As stated above, we do not interpret van Engelen's claims 4, 7 or 10 to require a force actuator system that exerts a compensation force between two frames. In any event, Lee did not rely on the Lee '820 patent to teach a force actuator system that exerts a compensation force between two frames. Rather, Lee alternatively relied on the '820 patent to show an actuator system that compensates for movement of two stages, as opposed to one stage.

Van Engelen argues that Schutten fails to disclose a compensation force between two frames and exerted on a reference frame. As discussed above, when properly construed, van Engelen's claims 4, 7 and 10 do not require that the force actuator system exert a compensation force between two frames. However, even if van Engelen claims 4, 7 and 10 do require a force actuator system that exerts a compensation force between two frames, van Engelen has failed to

demonstrate that it would not have been obvious to combine the Schutten actuator system to a two frame system.

Schutten discloses a force actuator system, with force actuators 74, 76 in between the ground and a work table (frame). Thus, Schutten discloses a force actuator in between two structures. Van Engelen has failed to sufficiently demonstrate that one of ordinary skill would not look to Schutten to teach placing force actuators in between two frames. Specifically, van Engelen fails to explain why Schutten's force actuators would not work in between two frames. Schutten teaches a force actuator system for compensating for forces acting on the frame (stage/table), or for tilting of the frame and for movement of the stage. Based on the record before us, such a system teaches a compensation system regardless of whether that system is placed in between two frames, or in between a frame and the ground. Note, absent from van Engelen's claims 4, 7, and 10 is a requirement that the compensation force compensate for reaction forces in a second frame. Rather the claims recite that the compensation force compensate for forces of gravity acting on the object table (substrate table/mask table). Schutten apparently compensates for such forces. Van Engelen has failed to direct us to evidence that demonstrates otherwise.

Van Engelen argues that the prior art fails to disclose a compensation force exerted in response to gravity forces on two moving stages as recited in claim 10 (opposition at 20). Claim 10 recites that the mechanical moments of the forces of gravity for both the mask table and substrate table are added in determining the opposing compensation force exerted on the reference frame. Van Engelen argues that Schutten only provides background information and does not teach a compensation force in response to gravity forces exerted on a substrate stage and a mask stage (opposition at 21). Van Engelen's response is dissatisfying.

In its preliminary motion, Lee explains that van Engelen claim 9 recites that the mask table and the substrate table are both supported on a common frame - the reference frame. The

claimed compensation force exerted in van Engelen claim 10 takes into account the sum of all forces acting on that common frame - from both the substrate and mask tables. Lee further explains that, although the Schutten reference fails to disclose two stages, Schutten does teach summing all of the forces acting on the supporting frame to arrive at the compensation force. Lee then concludes that one of ordinary skill would have been motivated to use the Schutten force actuator system to compensate for the forces of both the stages acting on a common frame - the reference frame, since Schutten itself teaches compensating for all forces acting on a common frame.

Van Engelen fails to sufficiently address Lee's argument. That Schutten fails to teach two stages, and an actuator system that compensates for the movement of two stages misses the point. Van Engelen should have explained why Lee's analysis was erroneous. Instead, van Engelen side steps Lee's argument altogether. Accordingly, van Engelen has failed to sufficiently rebut Lee's *prima facie* case with respect to van Engelen claim 10.

Van Engelen's discussion with respect to Schutten's horizontal forcers is irrelevant. Lee did not rely on the Schutten horizontal forcers to teach the force actuator system claimed in van Engelen claim 4, 7 or 10.

Van Engelen argues that Lee fails to point to any teaching in the Lee '820 patent or in Lee's involved application of an electronic control unit. Lee did not rely on its involved application to argue that the van Engelen claims 4, 7 and 10 should correspond to the count. Lee's reliance on the '820 patent was in the alternative only. As stated above, Lee made a *prima facie* case based on the van Engelen claims 3, 6 and 9 in view of Schutten without relying on the '820 patent.

Van Engelen argues that Lee attempts to piece together van Engelen's electric control unit from Schutten's various electronic components, and that by doing so has relied on hindsight to arrive at the claimed control unit. Any judgment on obviousness is in a sense necessarily a

reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper. In re McLaughlin, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971). Schutten teaches a force actuator system with a feedback loop 80 with various electronic components that function to provide feedback to the force actuators. Van Engelen, in its preliminary motion, takes the position that the various electronic components shown comprise an electric control unit. That position has not been shown by van Engelen to be one based on impermissible hindsight reasoning. The fact that Schutten shows electronic components in detail, as opposed to a "black box" labeled "electric control unit" does not mean that the various electric components shown in Schutten that cooperate to control the actuators are not what one of ordinary skill in the art would consider an electric control unit. Thus, we are not persuaded by van Engelen's hindsight argument.

For the reasons stated above, Lee preliminary motion 2 is granted.

Lee preliminary motions 3, 5 and 6

Lee moves for judgment against van Engelen on the basis that several of van Engelen's claims (including newly added claims 4, 7 and 9) are unpatentable over certain prior art. In this interference, van Engelen has failed to allege a date prior to van Engelen's effective filing date. Furthermore, van Engelen's preliminary motion 6 attacking the benefit granted Lee is denied. Accordingly, judgment will be entered against van Engelen. There is then no occasion to consider Lee's preliminary motions for judgment against van Engelen. For these reasons, Lee preliminary motion 3, 5, and 6 are dismissed.

Lee preliminary motion 4

Lee moves for benefit of U.S. Patent Application No. 09/127,288, filed July 31, 1998 (now U.S. Patent 6,049,186); U.S. Patent Application No. 08/627,824, filed April 2, 1996 (now

U.S. Patent 5,942,871); and U.S. Patent Application No. 08/221,375, filed April 1, 1994 (now U.S. Patent 5,528,118) with regard to Count 1. Since van Engelen has failed to allege a date that is earlier than the date accorded Lee at the time the interference was declared, and since van Engelen's motion attacking the benefit accorded Lee is denied, judgment will be entered against van Engelen. Accordingly, it is not necessary to determine if Lee should be accorded benefit of the above named applications. Lee preliminary motion 4 is dismissed.

Lee preliminary motion 7

In its preliminary motion 7, Lee proposes to add claims 9-18 to its application and to designate those claims as corresponding to count 1. Lee preliminary motion 7 is contingent upon the granting of either one of van Engelen preliminary motions 2 or 5. Since neither van Engelen preliminary motions 2 or 5 is granted, the contingency has not materialized. Accordingly, Lee preliminary motion 7 is dismissed.

Lee preliminary motion 8

Lee moves to substitute new count 1 for existing count 1. The motion is contingent on the granting of van Engelen preliminary motion 6. Since van Engelen preliminary motion 6 is denied, the contingency has not materialized. Accordingly, Lee preliminary motion 8 is dismissed.

Lee preliminary motion 9

Lee moves to be accorded benefit of certain of its prior applications for its proposed count 1. Since the proposed count 1 was not added to the interference, there is no occasion to decide Lee preliminary motion 9. Accordingly, Lee preliminary motion 9 is dismissed.

Lee motion to suppress

Lee moves to exclude paragraphs 69-90 of exhibit 2012, and exhibits 2025-2043 and 2048, documents relied upon by van Engelen in support of its preliminary motion 5. We find it unnecessary to consider the specific objections to the admissibility of those exhibits, since van Engelen failed to set forth a *prima facie* case of anticipation in its preliminary motion 5, even assuming the exhibits to be admissible.

Lee seeks to exclude paragraphs 21-23 of exhibit 2050, as those paragraphs were relied on by van Engelen in support of van Engelen's oppositions 3 and 5. Lee preliminary motions 3 and 5 were dismissed. Accordingly, there was no occasion to consider van Engelen's oppositions 3 and 5. Thus, we find it unnecessary to consider the specific objections with respect to exhibit 2050.

For these reasons, Lee's motion to suppress is dismissed.

D. Redeclaration of Interference

This interference is herein re-declared to the following extent:

The parties' claims corresponding to the count are:

Lee: 1-8

Van Engelen: 1-11

E. Judgment

Junior party van Engelen has not alleged a date of invention or conception with respect to the subject matter of the count prior to the senior party's earliest accorded benefit date of 4 April

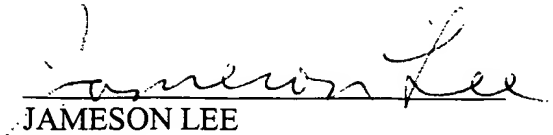
1995. Furthermore, van Engelen's preliminary motion 6, attacking the benefit accorded Lee is denied. Accordingly, judgment is entered against junior party van Engelen. It is

ORDERED that judgment as to the subject matter of the count is herein entered against junior party GERARD VAN ENGELEN, FRANK B. SPERLING, HENRICUS W. A. JANSSEN, ADIANUS G. BOUWER, CORNELIS D. VAN DIJK, JOHANNES M. M. VAN KIMMENADE, JAN VAN EIJK, and ADRIANUS VAN DER PAL;

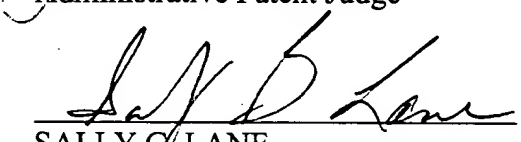
FURTHER ORDERED junior party GERARD VAN ENGELEN, FRANK B. SPERLING, HENRICUS W. A. JANSSEN, ADIANUS G. BOUWER, CORNELIS D. VAN DIJK, JOHANNES M. M. VAN KIMMENADE, JAN VAN EIJK, and ADRIANUS VAN DER PAL is not entitled to its claims 1-11 which correspond to the count;

FURTHER ORDERED that if there is a settlement agreement, the parties should note the requirements of 35 U.S.C. § 135(c) and 37 CFR § 1.666; and

FURTHER ORDERED that a copy of this judgment be filed in the respective involved application or patent of the parties.



JAMESON LEE
Administrative Patent Judge



SALLY G. LANE
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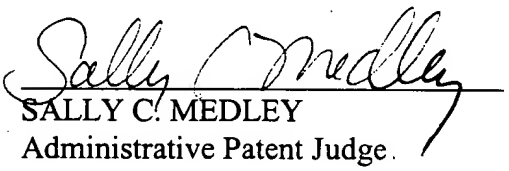

SALLY C. MEDLEY
Administrative Patent Judge

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A
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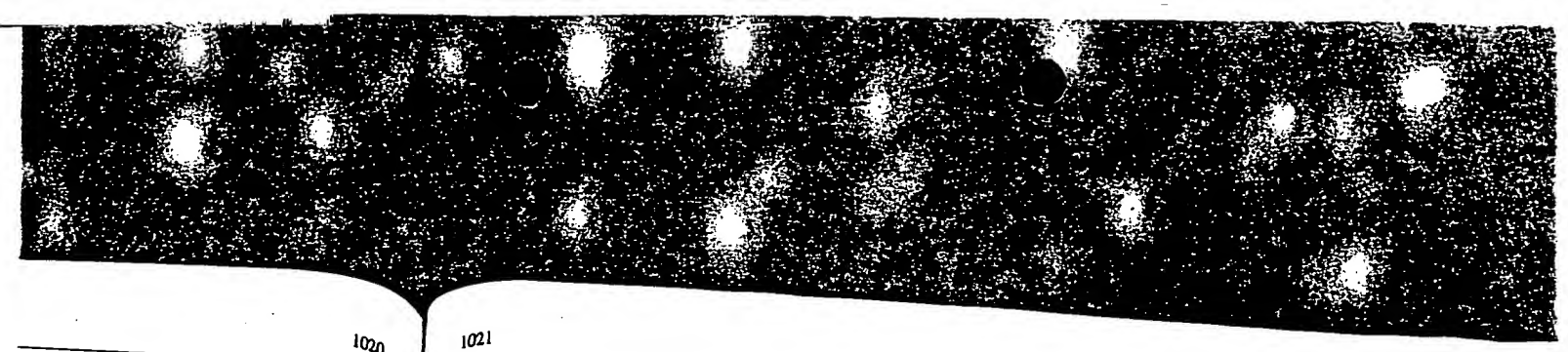

ˈstrə) *n. var. pl. of* ROSTRUM.
t', -trit, rŏˈstrāt', -strit) *adj.* [Lat. *rostratus* < *ros-*
Having a beaklike part.
m, rŏˈstrəm) *n., pl.* **ros·trums** *or* **ros·tra** (rŏsˈtrə, .] **1.** A raised platform for public speaking. **2.** In
A ship's curved beaklike prow. **b.** The speakers'
um, decorated with the prows of captured enemy
outlike or beaklike projection. **—ros'tral** *adj.*
i·er, -i·est. 1. Having the pink or red color of a
of, decorated with, or suggestive of roses.
ealthy glow. **4.** Marked by optimism : CHEERFUL.
e'i·ness *n.*
, rot·ting, rots. [ME *roten* < OE *rotian.*] —*vi.*
mposition, esp. organic decomposition : DECAY.
s or damaged because of decay. **3.** To decay mor-
o decay or decompose. —*n.* **1. a.** The process of
: of being rotten. **2. a.** Foot rot. **b.** Liver fluke.
nt diseases marked by the breakdown of tissue
s fungi, bacteria, or microorganisms. **4.** *Archaic.*
: decay of flesh. **5.** Nonsense. —*interj.* —Used to
impatience.
. wheel.] **1.** *Chiefly Brit.* A roster or roll call of
t. A round or rotation of duties. **3. Rota.** *Rom.*
of prelates that serves as an ecclesiastical court.
ən) *n.* A member of the Rotary Club, a major
ional service club.
li. [Med. Lat. *rotarius* < Lat. *rota,* wheel.] Of,
r marked by rotation, esp. axial rotation. —*n.*
device that rotates around an axis. **2.** A traffic

1. An engine, as a turbine, in which power is
tary, parts, as vanes. **2.** A radial engine whose
nd a stationary crankshaft.
harrow consisting of a series of freely turning

w having a series of hoes arranged on a revolv-

inting press having a cylinder to which curved
hat when they revolve they will print onto a
er.
tary plow.
t·ed, -tat·ing, -tates. [Lat. *rotare, rotat-* <
o turn on an axis. **2.** To proceed in sequence :
cause rotation. **2.** To grow or plant (crops) in
ssion. —*adj.* Having radiating parts : WHEEL-
adj.
n. **1. a.** Motion in which the path of every
ject is a circle or circular arc centered on a
an internal a... <the axial *rotation* of a
mplete cycle o: such motion : REVOLUTION.
transformation consisting of an angular dis-
angular displacements of coordinate axes
ing fixed. **3.** Uniform sequential variation.

li. **1.** Of, relating to, causing, or marked by
or occurring in succession or alteration.

One that rotates.
-tōrˈē) *adj.* **1.** Of, relating to, causing, or
oceeding or occurring in alternation or suc-

Memorization using routine or repetition
nsion <students learning by *rote*>
al repetition or routine.
and. orig.] The sound of surf breaking on

, of Germanic orig.] A medieval stringed

n. [J. *rōten,* derris + -ONE.] A white crys-
O_6, extracted from the roots of derris and
ticide.
. Inferior liquor.
NLat. *Rotifera,* phylum name < Lat. *rota,*
inute multicellular aquatic organisms of
ng at the anterior end a wheellike ring of
-əl), **ro·tifˈer·ous** *adj.*
adj. [Lat. *rota,* wheel + -FORM.] Shaped

. [Fr. *rôtisserie* < OFr. *rostisserie* < *rostir,*
.] **1.** A cooking device equipped with a
, as meat, is roasted. **2.** A shop or restau-
d to order.
unit of weight used in countries border-

ather ĕ pet ē be hw which ĭ pit
oe ō paw, for oi noise ŏŏ took

ing on the Mediterranean and in nearby areas, varying in different regions from about one to five pounds.

ro·to·gra·vure (rōˈtə-grə-vyŏŏrˈ) *n.* [Lat. *rota,* wheel + GRAVURE.] **1.** An intaglio printing process in which letters and pictures are transferred from an etched copper cylinder to a web of material, as paper or plastic, in a rotary press. **2.** Printed material, as a newspaper section, produced by rotogravure.

ro·tor (rōˈtər) *n.* [Contraction of ROTATOR.] **1.** A rotating part of an electrical or mechanical device. **2.** An assembly of rotating horizontal airfoils, as that of a helicopter.

rotor ship *n.* A ship propelled by one or more tall cylindrical rotors operated by wind power.

ro·to·till (rōˈtə-tĭlˈ) *vt.* **-tilled, -till·ing, -tills.** [Back-formation < ROTOTILLER.] To turn over with a rotary plow.

Ro·to·till·er (rōˈtə-tĭlˈər). A trademark for a rotary cultivator.

rot·ten (rŏtˈn) *adj.* **-er, -est.** [ME *roten* < ON *rotinn.*] **1.** Putrefied or decayed : DECOMPOSED. **2.** Having a foul odor resulting from or suggestive of decay : PUTRID. **3.** Made unsound or weak by rot. **4.** Morally corrupt : DESPICABLE. **5.** Very bad : WRETCHED <a *rotten* climate> **—rotˈten·ly** *adv.* **—rotˈten·ness** *n.*

rotten borough *n.* An election district having only a few voters but the same voting power as other more populous districts.

rot·ten·stone (rŏtˈn-stōnˈ) *n.* A friable variety of tripoli, the product of decomposed siliceous limestone, used for polishing.

rott·wei·ler (rŏtˈwīˈlər, rōtˈvīˈ-) *n.* [G. < *Rottweil,* city in southwestern Germany where it was orig. bred.] A German breed of dog having a stocky body, short black fur, and tan face markings.

ro·tund (rō-tŭndˈ) *adj.* [Lat. *rotundus* < *rota,* wheel.] **1.** Characterized by roundness : ROUNDED. **2.** Sonorous. **3.** Quite plump : CHUBBY. **—ro·tundˈly** *adv.* **—ro·tundˈness** *n.*

ro·tun·da (rō-tŭnˈdə) *n.* [Ital. < Lat., fem. of *rotundus,* rotund.] **1.** A circular hall or building, esp. one with a dome. **2.** A large room with a high ceiling, as a hotel lobby.

ro·tun·di·ty (rō-tŭnˈdĭ-tē) *n., pl.* **-ties. 1.** The state of being round or plump. **2.** A rotund object or protrusion.

ro·tu·rier (rō-tōōrˈē-ā', -tyŏŏrˈ-) *n.* [Fr. < OFr. < *roture,* newly cultivated land < Lat. *ruptura,* action of breaking < *rumpere,* to break.] A commoner.

rou·ble *or* **ru·ble** (rōōˈbəl) *n.* [R. *rubl'.*] —See table at CURRENCY.

rou·é (rōō-āˈ) *n.* [Fr. < p.part. of *rouer,* to break on a wheel < Lat. *rotare,* to rotate < *rota,* wheel.] A lecherous man : RAKE.

rouge (rōōzh) *n.* [Fr. < OFr., of red color < Lat. *rubeus.*] **1.** A red or pink cosmetic for coloring the cheeks or lips. **2.** A reddish powder, chiefly ferric oxide, used to polish metals or glass. —*v.* **rouged, roug·ing, rouges.** —*vt.* **1.** To put rouge on. **2.** To color with rouge. —*vi.* To use rouge as a cosmetic.

rouge et noir (rōōzhˈ ā nwärˈ) *n.* [Fr., red and black.] A gambling card game played at a table marked with two red and two black diamond-shaped spots on which bets are placed.

rough (rŭf) *adj.* **-er, -est.** [ME < OE *rūh.*] **1.** Having an uneven bumpy surface. **2.** Coarse or shaggy to the touch <a *rough* woolen shirt> **3.** Marked by violent motion : TURBULENT <*rough* seas> **4.** Severely inclement : STORMY. **5.** Boisterous, unruly, or rowdy. **6.** Not gentle or careful : VIOLENT <*rough* treatment> **7.** Brutal : savage. **8.** Rude : uncouth. **9.** *Informal.* Trying or unpleasant to endure or do : DIFFICULT. **10.** Harsh to the ear <a *rough,* scraping sound> **11.** Harsh or sharp to the taste <a *rough,* immature wine> **12.** Lacking finesse or polish. **13.** Being in a natural state <*rough* gems> **14.** Not completed, perfected, or fully detailed <a *rough* sketch> **15.** Requiring physical strength rather than intelligence <*rough* labor> —*n.* **1.** Rugged overgrown ground. **2.** The part of a golf course left unmowed and uncultivated. **3.** A rough, irregular, or difficult part or state. **4.** Something hastily worked out or unfinished. **5.** A crude ill-mannered person : BOOR. —*vt.* **roughed, rough·ing, roughs. 1.** To make rough. **2.** To treat roughly or violently : MANHANDLE <*roughed* up the prisoner> **3.** To indicate or prepare in a rough or unfinished form <*rough* out a building plan> —*adv.* In a rough way. **—in the rough. 1.** In a crude or unfinished state. **—rough it.** To do without the usual conveniences and comforts <*roughed it* for three days in the woods> **—rough'er** *n.* **—rough'ly** *adv.* **—rough'ness** *n.*

rough·age (rŭfˈĭj) *n.* The relatively coarse, indigestible parts of certain foods and fodder that contain cellulose and stimulate peristalsis.

rough-and-read·y (rŭfˈən-rēdˈē) *adj.* Rough and crude, yet effective.

rough-and-tum·ble (rŭfˈən-tŭmˈbəl) *adj.* Marked by roughness and disregard for rules or order <a *rough-and-tumble* fight>

rough breathing *n.* **1.** An aspirate sound in Greek like that of the letter *h* in English. **2.** The mark (') placed over initial sounds in Greek to indicate a preceding aspirate.

rough·cast (rŭfˈkăstˈ) *n.* **1.** A coarse plaster used for outside wall surfaces. **2.** A rough preliminary model. —*vt.* **-cast, -cast·ing, -casts. 1.** To plaster (e.g., a wall) with roughcast. **2.** To shape or work into a rough or preliminary form. **—rough'cast'er** *n.*

rough-dry (rŭfˈdrīˈ) *vt.* **-dried, -dry·ing, -dries.** To dry (laundry) without smoothing out or ironing.

rough·en (rŭfˈən) *vt. & vi.* **-ened, -en·ing, -ens.** To make or become rough.

rough·hew (rŭfˈhyōōˈ) *vt.* **-hewed** *or* **-hewn** (-hyōōnˈ), **-hew·ing, -hews. 1.** To hew (e.g., timber) roughly, without finishing. **2.** To make in rough form.

rough·house (rŭfˈhousˈ) *n.* Rowdy, boisterous play or behavior. —*v.* **-housed, -hous·ing, -hous·es.** —*vi.* To engage in roughhouse. —*vt.* To treat or handle roughly, usu. in fun.

rough-leg·ged hawk (rŭfˈlĕgˈĭd) *n.* A hawk, *Buteo lagopus,* with dark plumage and whitish feathers covering the legs.

rough·neck (rŭfˈnĕkˈ) *n.* **1.** An uncouth person. **2.** A rowdy.

rough·rid·er (rŭfˈrīˈdər) *n.* **1.** A skilled rider of little-trained horses, esp. one who breaks horses for riding. **2. Roughrider.** A member of the 1st U.S. Volunteer Cavalry regiment under Theodore Roosevelt in the Spanish-American War.

rough-shod (rŭfˈshŏdˈ) *adj.* **1.** Shod with horseshoes having projecting nails or points to prevent slipping. **2.** Marked by brutal force.

rou·lade (rōō-lädˈ) *n.* [Fr. < *rouler,* to roll < OFr. *roler.* —see ROLL.] **1.** *Mus.* **a.** An embellishment consisting of a rapid run of several notes sung to one syllable. **b.** A drum roll. **2.** A slice of meat rolled around a filling and cooked.

rou·leau (rōō-lōˈ) *n., pl.* **-leaux** *or* **-leaus** (-lōzˈ) [Fr. < OFr. *rolel,* dim. of *role,* roll < Lat. *rotula,* little wheel, dim. of *rota,* wheel.] **1.** A small roll; esp. of coins wrapped in paper. **2.** A roll or fold of ribbon for piping.

rou·lette (rōō-lĕtˈ) *n.* [Fr. < OFr. < *rouelle,* dim. of *roue,* wheel < Lat. *rota.*] **1.** A gambling game in which the players bet on which slot of a rotating disk a small ball will come to rest in. **2.** A small toothed disk of tempered steel attached to a handle and used to make rows of dots, slits, or perforations, as in engraving or on a sheet of postage stamps. **3.** Short consecutive incisions made between individual stamps in a sheet for easy separation. —*vt.* **-lett·ed, -lett·ing, -lettes.** To divide or mark with a roulette.

Rou·ma·ni·an (rōō-māˈnē-ən, -mānˈyən) *adj. & n. var. of* RUMANIAN.

round[1] (round) *adj.* [ME < OFr. *ronde* < Lat. *rotundus* < *rota,* wheel.] **1.** Ball-shaped : spherical. **2.** Circular or circular in cross section. **3.** Having a curved surface or edge : not flat or angular. **4.** Pronounced with the lips in a rounded shape. **5.** Whole or complete : FULL. **6. a.** Expressed or designated as a whole number or integer : not fractional. **b.** Not exact : APPROXIMATE. **7.** Considerable : large <a *round* amount> **8.** Brought to a satisfying completion : FINISHED. **9.** Full in tone : SONOROUS. **10.** Brisk : lively <a *round* jogging pace> **11.** Blunt : outspoken <a *round* reprimand> **12.** Done with full force : UNRESTRAINED <a *round* spanking> —*n.* **1.** The state of being round. **2. a.** Something, as a circle, globe, disk, or ring, that is round. **b.** A rounded or curved form or part. **3.** A rung or crossbar, as on a ladder. **4.** A cut of beef from the part of the thigh between the shank and the rump. **5.** A gathering of people : GROUP. **6.** Movement around a circle or about an axis. **7.** A round dance. **8.** A complete course, succession, or series <a *round* of meetings> **9.** *often* **rounds.** A course of customary or prescribed duties, actions or places. **10.** A complete extent or range. **11.** One drink for each person in a group. **12.** A single outburst of cheering or applause. **13. a.** A single shot or volley. **b.** Ammunition for a single shot. **14.** A rounded slice of bread. **15.** A specified number of arrows shot from a specified distance to a target in archery. **16.** An interval of play in games and sports that occupies a specified time, comprises a certain number of plays, or allows each player a turn. **17.** *Mus.* A composition for two or more voices in which each voice enters at a different time with the same melody. —*v.* **round·ed, round·ing, rounds.** —*vt.* **1.** To make round. **2.** To pronounce with rounded lips : LABIALIZE. **3.** To make plump : FILL OUT. **4.** To bring to completion : FINISH. **5.** To express as a round number. **6.** To make a complete circuit of. **7.** To make a turn about or to the other side of <*rounded* a curve in the highway> **8.** To surround : encompass. **9.** To move or cause to proceed in a circular course. —*vi.* **1.** To become round. **2.** To take a circular course. **3.** To turn about, as on an axis : REVERSE. **4.** To become filled out, curved, or plump. **5.** To come to completion or perfection. **—round up. 1.** To seek out and bring together : GATHER. **2.** To herd (cattle) together from various places. —*adv.* Around. —*prep.* **1.** Around. **2.** From the beginning to the end of : THROUGHOUT <plants that grow *round* the year> **—in the round. 1.** With the stage in the center of the audience. **2.** Fully shaped so as to stand free of a background <a statue *in the round*> **—round'ness** *n.*

round[2] (round) *vt.* **round·ed, round·ing, rounds.** [ME *rounden* < OE *rūnian.*] *Archaic.* To whisper.

round·a·bout (roundˈə-boutˈ) *adj.* Circuitous : indirect. —*n.* **1.** A close-fitting short jacket. **2.** *Chiefly Brit.* A merry-go-round. **3.** *Chiefly Brit.* A traffic circle.

round clam *n.* The quahog.

round dance *n.* **1.** A folk dance performed with the dancers arranged in a circle. **2.** A ballroom dance in which couples proceed in a circular direction around the room.

round·ed (rounˈdĭd) *adj.* **1.** Shaped in a circle or sphere. **2.** Pro-

ŏŏ boot ou out th thin th this ŭ cut ûr urge y young
yŏŏ abuse zh vision ə about, item, edible, gallop, circus

stationary wave *n.* A standing wave.
station break *n.* A pause in a broadcast program to allow for identification of the network or station.
sta·tion·er (stā'shə-nər) *n.* [ME *stacioune*r < Med. Lat. *stationarius*, shopkeeper < *statio*, shop < Lat., station.] **1.** A seller of stationery. **2.** *Obs.* **a.** A publisher. **b.** A bookseller.
sta·tion·er·y (stā'shə-nĕr'ē) *n.* **1.** Writing paper and envelopes. **2.** Writing or typing materials.
station house *n.* **1.** A police station. **2.** A fire station.
sta·tion·mas·ter (stā'shən-mās'tər) *n.* An official in charge of a railroad station.
Stations of the Cross *pl.n.* **1.** A devotion that consists of meditation before each of the images or representations set up usu. in a church to commemorate 14 events in the passion of Jesus. **2.** The 14 images representing the events of the passion of Christ.
station wagon *n.* An automobile having an extended interior, third seat or luggage platform, and a tailgate.
sta·tis·tic (stə-tĭs'tĭk) *n.* [Back-formation < STATISTICS.] **1.** A numerical datum. **2.** An estimate of a parameter, as of the population mean or variance, obtained from a sample. **3.** A random variable that takes on the characteristics of a statistic.
sta·tis·ti·cal (stə-tĭs'tĭ-kəl) *adj.* Of, relating to, or using statistics or the principles of statistics. **—sta·tis'ti·cal·ly** *adv.*
stat·is·ti·cian (stăt-ĭ-stĭsh'ən) *n.* **1.** A specialist in statistics. **2.** One who compiles of statistical data.
sta·tis·tics (stə-tĭs'tĭks) *n.* [G. *Statistik*, political science < NLat. *statisticus*, of state affairs < Lat. *status*, state. —see STATE.] **1.** *(sing. in number).* The mathematics of the collection, organization, and interpretation of numerical data. **2.** *(pl. in number).* A collection of numerical data.
stato- *pref.* [< Gk. *statos*, standing, placed.] **1.** Resting : remaining <*stato*blast> **2.** Equilibrium : balance <*stato*cyst>
stat·o·blast (stăt'ə-blăst') *n.* An asexually produced encapsulated bud of a freshwater bryozoan from which new individuals develop after the parent colony has disintegrated.
stat·o·cyst (stăt'ə-sĭst') *n.* A small organ of balance in many invertebrates, consisting of a fluid-filled sac containing statoliths that help indicate position when the animal moves.
stat·o·lith (stăt'l-ĭth') *n.* A small movable concretion of calcium carbonate found in statocysts.
sta·tor (stā'tər) *n.* [Lat., one that stands < *status*, p.part of *stare*, to stand.] The stationary part of a machine, such as a motor, dynamo, or turbine, about which a rotor turns.
stat·o·scope (stăt'ə-skōp') *n.* **1.** A barometer for recording small variations in atmospheric pressure. **2.** A device for indicating small changes in an airplane's altitude.
stat·u·ar·y (stăch'ōō-ĕr'ē) *n., pl.* **-ies.** [Partly < Lat. *statuaria*, art of making statues, and partly < Lat. *statuarius*, sculptor, both < *statuarius*, of a statue < *statua*, statue.] **1.** Statues collectively. **2.** A sculptor. **3.** The art of making statues.
stat·ue (stăch'ōō) *n.* [ME < OFr. < Lat. *statua* < *statuere*, to set up. —see STATUTE.] A form or likeness sculpted, modeled, carved, or cast in material such as stone, clay, wood, or bronze.
stat·u·esque (stăch'ōō-ĕsk') *adj.* Like a statue, esp. in size, grace, or dignity : STATELY. **—stat'u·esque'ly** *adv.*
stat·u·ette (stăch'ōō-ĕt') *n.* A small statue.
stat·ure (stăch'ər) *n.* [ME < OFr. < Lat. *statura* < *status*, p.part. of *stare*, to stand.] **1.** The natural height of a human or animal body in an upright position. **2.** A level achieved : STATUS.
stat·us (stā'təs, stăt'əs) *n.* [Lat., condition, p.part of *stare*, to stand.] **1.** The legal character or condition of a person or thing <the *status* of a minor> **2.** A stage of progress or development. **3. a.** Relative position in a ranked group or in a social system <the high *status* of physicians> **b.** High relative position <a job with *status*> **4.** A state of affairs : SITUATION.
status quo (stā'təs kwō', stăt'əs) *n.* [Lat., state in which.] The existing condition : STATE OF AFFAIRS.
status word *n.* A computer storage location which provides data to restore an interrupted program.
stat·u·ta·ble (stăch'ə-tə-bəl) *adj.* **1.** Enacted, regulated, or authorized by statute : STATUTORY. **2.** Legally punishable : recognized by statute <a *statutable* offense>
stat·ute (stăch'ōōt) *n.* [ME < OFr. *estatut* < LLat. *statutum* < Lat., *statutus*, p.part. of *statuere*, to set up < *status*, p.part of *stare*, to stand.] **1.** A law enacted by the legislative assembly of a nation or state. **2.** A decree or edict. **3.** An established law or rule, esp. of a corporation.
statute law *n.* A law established by legislative enactment.
statute mile *n.* MILE 1.
statute of limitations *n. Law.* A statute setting a time limit on legal action in certain cases.
stat·u·to·ry (stăch'ə-tôr'ē, -tōr'ē) *adj.* **1.** Of or relating to a statute. **2.** Enacted, regulated, or authorized by statute.
statutory offense *n.* A legal offense declared by statute.
statutory rape *n.* Sexual intercourse with a girl who has not reached the statutory age of consent.
staunch[1] (stônch, stänch) *also* **stanch** (stänch, stänch) *adj.* **-er, -est.** [ME *staunche*, watertight < OFr. *estanche* < *estanchier*, to stanch. —see STANCH.] **1.** Firm and steadfast : TRUE. **2.** Having strong construction or constitution. **usage:** The adjective is commonly spelled *staunch*, but the verb form is more commonly spelled *stanch*. **—staunch'ly** *adv.* **—staunch'ness** *n.*
staunch[2] (stônch, stänch) *v. var. of* STANCH[1].
stau·ro·lite (stôr'ə-līt') *n.* [Fr. < Gk. *stauros*, cross.] A brown to black mineral, chiefly $FeAl_9Si_2O_{10}(OH)_2$, often with crossed twin-grown crystals, occas. used as a gem. **—stau'ro·lit'ic** (-lĭt'ĭk) *adj.*
stave (stāv) *n.* [Back-formation < *staves*, pl. of STAFF.] **1.** A narrow strip of wood forming part of the sides of a container, such as a barrel or tub. **2.** A rung of a ladder or chair. **3.** A staff. **4.** A musical staff. **5.** A set of verses : STANZA. —*v.* **staved** or **stove** (stōv), **staving, staves.** —*vt.* **1.** To break in or puncture the staves of. **2.** To crush or smash. **3.** To crush or smash inward. —*vi.* To be or become crushed in. **—stave off.** To keep or ward hold off.
staves (stāvz) *n. var. pl. of* STAFF[1] 1, 2, 4.
staves·a·cre (stāvz'ā'kər) *n.* [By folk ety. < ME *staphisagre* < Gk., wild raisin.] **1.** A larkspur, *Delphinium staphisagria* of southern Europe, with greenish-white flowers. **2.** The poisonous seeds of the staves acre, formerly used externally as a parasiticide.
stay[1] (stā) *v.* **stayed, stay·ing, stays.** [ME *steyen*, to halt < OFr. *ester*, to stop < Lat. *stare*, to stand.] —*vi.* **1.** To remain in a place or condition <*stay* home><couldn't *stay* interested in the subject> **2.** To sojourn as a guest or lodger <*stayed* with a friend in country house> **3.** To stop moving : CEASE. **4.** To wait : PAUSE. **5.** To hold on : ENDURE. **6.** To keep up in a race or contest. **7.** To stop in poker without raising it. —*vt.* **1.** To stop or halt : CHECK. **2.** To postpone : delay. **3.** To delay or stop the effect of (e.g., an order) by legal action or mandate. **4.** To satisfy temporarily <*stayed* my hunger with a snack> **5.** *Obs.* To wait for : AWAIT. —*n.* **1.** The act of halting : CHECK. **2.** The act of coming to a halt. **3.** A brief period of residence or visiting. **4.** Suspension or postponement of a legal order <a *stay* of execution>

☆ ***syns:*** STAY, SOJOURN, VISIT *v.* core meaning : to remain as a guest or lodger <*stayed* with friends>

stay[2] (stā) *vt.* **stayed, stay·ing, stays.** [OFr. *estayer*, to support, *estaie*, a support, of Germanic orig.] **1.** To support or prop up : sustain mentally or spiritually. **3.** To rest or fix on for support. —*n.* **1.** A support : brace. **2.** A strip of bone, plastic, or metal used to stiffen a garment. **3. stays.** A corset.
stay[3] (stā) *n.* [ME < OE *stæg*.] **1.** A heavy rope or cable that serves as a brace or support for a mast or spar. **2.** A rope used to guide or hold something. —*v.* **stayed, stay·ing, stays.** —*vt.* **1.** To brace with a stay. **2.** To put (a ship) on the opposite tack. —*vi.* To come about.
staying power *n.* Stamina : endurance.
stay-in strike (stā'ĭn') *n.* A job action that consists of a refusal to go down or work stoppage by employees who remain at their work place.
stay·sail (stā'səl, -sāl') *n. Naut.* A triangular sail hoisted on a stay.
St. Bernard (sānt' bər-närd') *n.* The Saint Bernard.
stead (stĕd) *n.* [ME *stede* < OE.] The place or position of another <My friend went to the meeting in my *stead.*> —*vt.* **stead·ed, stead·ing, steads.** To be of advantage to : BENEFIT.
stead·fast *also* **sted·fast** (stĕd'făst', -fəst) *adj.* [ME *stedefast* < OE *stedefæst* : *stede*, place + *fæst*, fixed, fast.] **1.** Fixed or unwavering : STEADY. **2.** Firmly loyal or constant. **—stead'fast'ly** *adv.* **—stead'fast'ness** *n.*
stead·y (stĕd'ē) *adj.* **-i·er, -i·est.** **1.** Firm in position or place : STABLE. **2.** Direct and unfaltering : SURE. **3.** Continuous in movement, quality, or pace <a slow, *steady* trot> **4.** Not easily excited : SOBER. **5.** Reliable : dependable. **6.** Marked by temperance : SOBER. —*v.* **stea·:·ed, stead·y·ing, stead·ies.** *vt.* & *vi.* To make or become steady. —*n., pl.* **-ies.** *Slang.* The person one dates regularly and exclusively. **—stead'i·er** *n.* **—stead'i·ly** *adv.* **—stead'i·ness** *n.*
steady state *n.* A stable condition that does not change over time or in which change in one direction is continually balanced by change in another.
stead·y-state theory (stĕd'ē-stāt') *n.* A cosmological theory that assumes that the large-scale view of the universe is independent of the position of the observer in space and time and that the expansion of the universe, required on other grounds, is compensated for by the continuous creation of matter.
steak (stāk) *n.* [ME *steyke* < ON *steik.*] **1.** A piece of meat, esp. beef, typically cut in a thick slice across the muscle grain. **2.** A thick slice of a large fish cut across the body. **3.** A patty of ground meat that has been prepared like a steak.
steak house *n.* A restaurant specializing in beefsteak dinners.
steak knife *n.* A table knife with a sharp, occas. serrated blade.
steak tartare (tär'tär') *n.* [STEAK + Fr. *tartare*, Tartar.] A dish of raw ground beef mixed with onion, seasoning, and raw egg.
steal (stēl) *v.* **stole** (stōl), **sto·len** (stō'lən), **steal·ing** *and* [ME *stelen* < OE *stelan.*] —*vt.* **1.** To take *(the property of another)* without right or permission. **2.** To get or accomplish secretly or

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Fifth Edition

Sybil P. Parker
Editor in Chief

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On the cover: Photomicrograph of crystals of vitamin B_1.
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some previously known flow are small compared with the speed of sound; as a result, the equations of motion can be approximated by retaining only those terms which are linear in disturbance or perturbation velocities, pressures, densities, and so forth. { ˈlin·ē·ə ˌrīzd ˌthē·ə·rē əv ˈflü·əd ˌflō }

linear light [NAV] In marine operations, a luminous signal having perceptible length, as contrasted with a point light, which does not have perceptible length. { ˈlin·ē·ər ˌlīt }

linear - logarithmic intermediate - frequency amplifier [ELECTR] Amplifier used to avoid overload or saturation as a protection against jamming in a radar receiver. { ˈlin·ē·ər ˌläg·ə·ˈrith·mik ˌin·tər·ˈmē·dē·ət ˈfrē·kwən·sē ˈam·plə,fī·ər }

linearly dependent quantities [MATH] Quantities that satisfy a homogeneous linear equation in which at least one of the coefficients is not zero. { ˈlin·ē·ər·lē di·ˈpen·dənt ˈkwän·tə,tēz }

linearly disjoint extensions [MATH] Two extension fields E and F of a field k contained in a common field L, such that any finite set of elements in E that is linearly independent when E is regarded as a vector space over k remains linearly independent when E is regarded as a vector space over F. { ˈlin·ē·ər·lē ˈdis·ˈjȯint ik·ˈsten·chənz }

linearly graded junction [ELECTR] A pn junction in which the impurity concentration does not change abruptly from donors to acceptors, but varies smoothly across the junction, and is a linear function of position. { ˈlin·ē·ər·lē ˈgrād·əd ˈjəŋk·shən }

linearly independent quantities [MATH] Quantities which do not jointly satisfy a homogeneous linear equation unless all coefficients are zero. { ˈlin·ē·ər·lē ˌin·dəˈpen·dənt ˈkwän·əd·ēz }

linearly ordered set [MATH] A set with an ordering $\leq$ such that for any two elements a and b either $a \leq b$ or $b \leq a$. Also known as chain; serially ordered set; simply ordered set. { ˈlin·ē·ər·lē ˈȯr·dərd ˈset }

linear magnetic amplifier [ELECTR] A magnetic amplifier employing negative feedback to make its output load voltage a linear function of signal current. { ˈlin·ē·ər mag·ˈned·ik ˈam·plə,fī·ər }

linear manifold [MATH] A subset of a vector space which is itself a vector space with the induced operations of addition and scalar multiplication. { ˈlin·ē·ər ˈman·ə,fōld }

linear meter [ENG] A meter in which the deflection of the pointer is proportional to the quantity measured. { ˈlin·ē·ər ˈmēd·ər }

linear model [STAT] A mathematical model in which linear equations connect the random variables and the parameters. Also known as linear hypothesis. { ˈlin·ē·ər ˈmäd·əl }

linear modulation [COMMUN] Modulation in which the amplitude of the modulation envelope (or the deviation from the resting frequency) is directly proportional to the amplitude of the intelligence signal at all modulation frequencies. { ˈlin·ē·ər ˌmäj·əˈlā·shən }

linear molecule [PHYS CHEM] A molecule whose atoms are arranged so that the bond angle between each is 180°; an example is carbon dioxide, CO_2. { ˈlin·ē·ər ˈmäl·əˌkyül }

linear momentum *See* momentum. { ˈlin·ē·ər məˈmen·təm }

linear motion *See* rectilinear motion. { ˈlin·ē·ər ˈmō·shən }

linear motor [ELEC] An electric motor that has in effect been split and unrolled into two flat sheets, so that the motion between rotor and stator is linear rather than rotary. { ˈlin·ē·ər ˈmōd·ər }

linear network [ELEC] A network in which the parameters of resistance, inductance, and capacitance are constant with respect to current or voltage, and in which the voltage or current of sources is independent of or directly proportional to other voltages and currents, or their derivatives, in the network. Also known as linear circuit. { ˈlin·ē·ər ˈnet,wərk }

linear operator *See* linear transformation. { ˈlin·ē·ər ˈäp·ə,rād·ər }

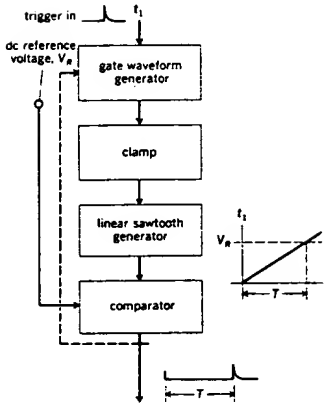
linear order [MATH] Any order $<$ on a set S with the property that for any two elements a and b in S either $a<b$ or $b<a$. Also known as complete order; simple order; total order. { ˈlin·ē·ər ˈȯr·dər }

linear oscillator *See* harmonic oscillator. { ˈlin·ē·ər ˈäs·ə,lād·ər }

linear parallax *See* absolute stereoscopic parallax. { ˈlin·ē·ər ˈpar·ə,laks }

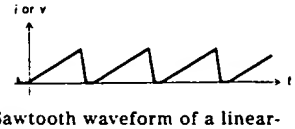
linear parallel texture [PETR] The parallel texture of a rock in which the constituents are parallel to a line, not just to a plane as in plane parallel texture. { ˈlin·ē·ər ˈpar·ə,lel ˈteks·chər }

LINEAR-SWEEP DELAY CIRCUIT



Elements of linear-sweep delay circuit. T = delay time; V_R = reference voltage; t_1 = time.

LINEAR-SWEEP GENERATOR



Sawtooth waveform of a linear-sweep generator. Current i or voltage v is plotted against time t.

linear-phase [ELECTR] Pertaining to a filter or other ... whose image phase constant is a linear function of ... { ˈlin·ē·ər ˌfāz }

linear polarization [OPTICS] Polarization of an ... netic wave in which the electric vector at a fixed point ... remains pointing in a fixed direction, although varying ... nitude. Also known as plane polarization. { ... rəˈzā·shən }

linear polymer [ORG CHEM] A polymer whose ... arranged in a chainlike fashion with few branches ... between the chains. { ˈlin·ē·ər ˈpäl·ə·mər }

linear power amplifier [ELECTR] A power amplifier ... the signal output voltage is directly proportional to ... input voltage. { ˈlin·ē·ər ˈpau·ər ˌam·plə,fī·ər }

linear programming [MATH] The study of ... minimizing a linear function $f(x_1, \ldots, x_n)$ subject to ... straints which are linear inequalities involving the ... { ˈlin·ē·ər ˈprō,gram·iŋ }

linear-quadratic-gaussian problem [CONT SYS] ... mal-state regulator problem, containing Gaussian ... the state and measurement equations, in which the ... value of the quadratic performance index is to be ... Abbreviated LQG problem. { ˈlin·ē·ər kwəˈdrad·ik ... ˌpräb·ləm }

linear rectifier [ELECTR] A rectifier, the output ... voltage of which contains a wave having a form ... that of the envelope of an impressed signal wave. ... ˈrek·təˌfī·ər }

linear regression [STAT] The straight line ... the points of a scatter diagram about which the amount of ... is smallest, as defined, for example, by the least ... { ˈlin·ē·ər riˈgresh·ən }

linear regulator problem [CONT SYS] A type of ... trol problem in which the system to be controlled ... by linear differential equations and the performance ... minimized is the integral of a quadratic function of ... state and control functions. Also known as optimal ... problem; regulator problem. { ˈlin·ē·ər ˈregyəˌlād·ər ... ləm }

linear repeater [ELECTR] A repeater used in ... satellites to amplify input signals a fixed amount, ... traveling-wave tubes or solid-state devices ... linear region. { ˈlin·ē·ər riˈpēd·ər }

linear scale *See* uniform scale. { ˈlin·ē·ər ˈskāl }

linear scanning [ENG] Radar beam which moves ... stant angular velocity through the scanning sector, ... be a complete 360°. { ˈlin·ē·ər ˈskan·iŋ }

linear space *See* vector space. { ˈlin·ē·ər ˈspās }

linear speed method [ORD] Method of calculating ... firing data in which the future position of a moving ... determined by finding the direction of flight and the ... speed of the target; by multiplying the ground speed by ... of flight of the projectile, the future position is ... { ˈlin·ē·ər ˈspēd ˌmeth·əd }

linear Stark effect [ATOM PHYS] A splitting of ... of hydrogenlike atoms placed in an electric field; ... level of principal quantum number n is split into $2n$ ... tant levels of separation proportional to the field ... ē·ər ˈstärk i,fekt }

linear stopping power *See* stopping power. { ˈlin·ē·ər ˌpau·ər }

linear strain [MECH] The ratio of the change in the ... a body to its initial length. Also known as longitudinal ... { ˈlin·ē·ər ˈstrān }

linear sweep [ELECTR] A cathode-ray sweep in ... beam moves at constant velocity from one side of the ... the other, then suddenly snaps back to the starting ... ē·ər ˈswēp }

linear-sweep delay circuit [ELECTR] A widely ... linear time-delay circuit in which the input signal ... by a linear sawtooth generator, such as the ... integrator, whose output is then compared with a ... direct-current reference voltage level. { ˈlin·ē·ər ... ˌsər·kət }

linear-sweep generator [ELECTR] An electronic ... provides a voltage or current that is a linear ... the waveform is usually recurrent at uniform ... { ˈlin·ē·ər ˈswēp ˌjen·ə,rād·ər }

linear system [CONT SYS] A system in which the ...